

Art of Science Communication

Dr T V Venkateswaran

Vigyan Prasar

New Delhi

tvv123@gmail.com




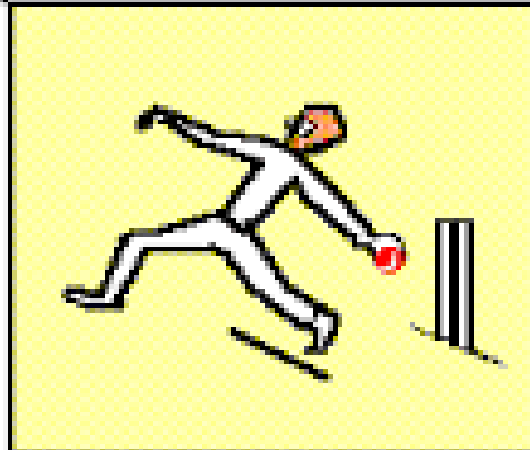

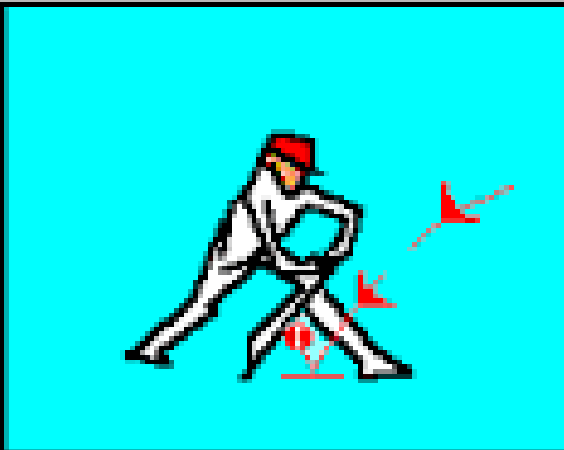
Are the technical words the hurdle?

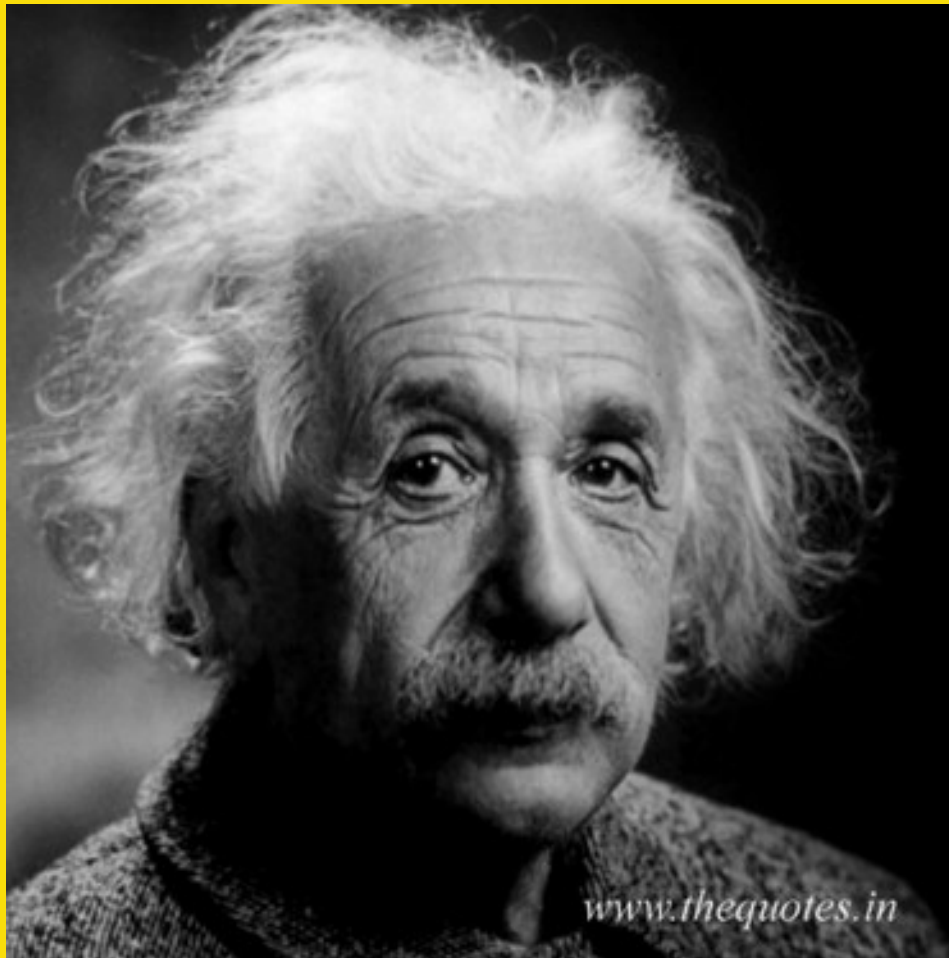


Esoteric jargons



Really?

		
BOWLED	BUMPER	CAUGHT (OUT)
	<p>Batter's...</p> 	
NO-BALL	OFF, ON/LEG SIDE	OVERPITCH(ED)

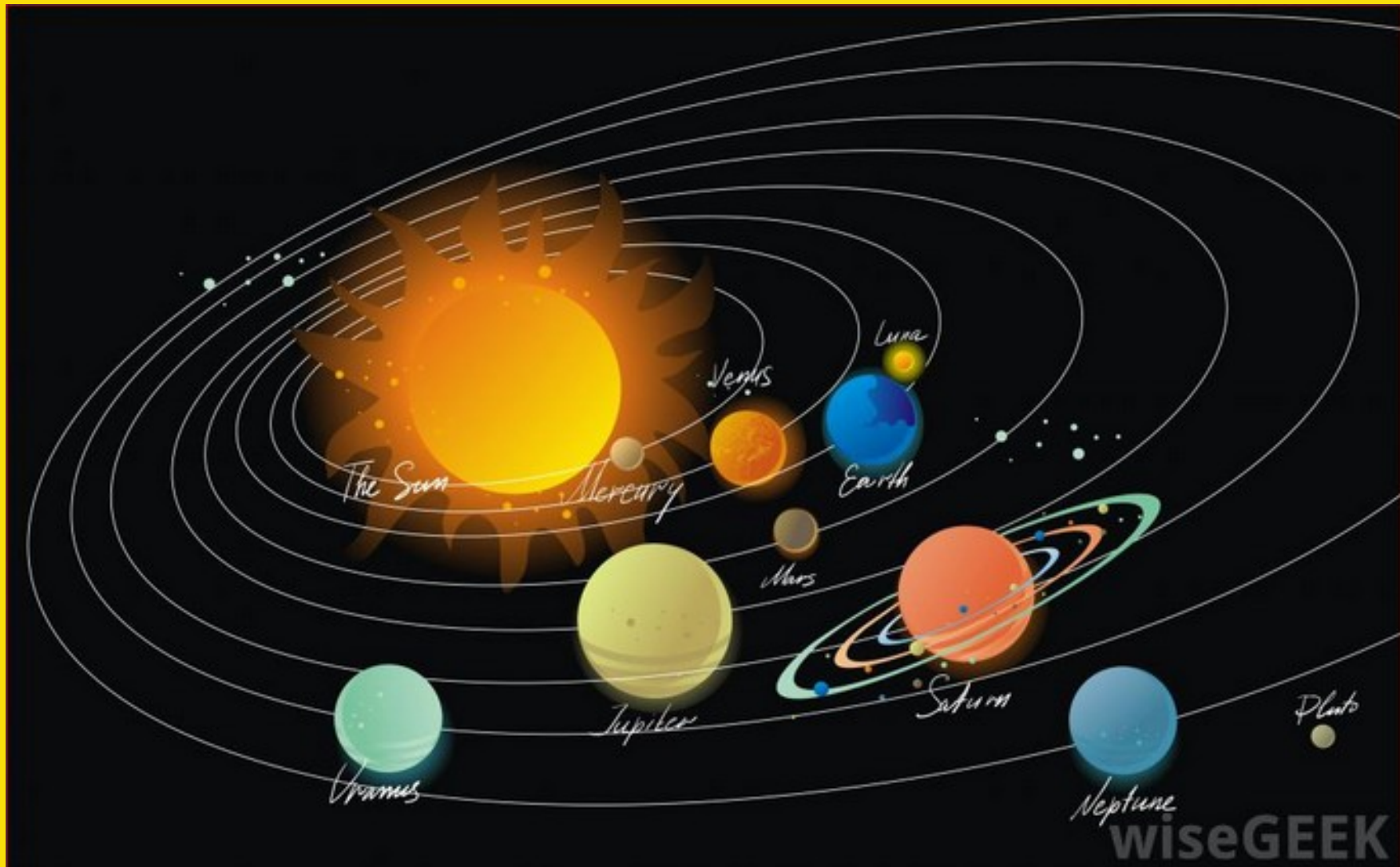


If you can't explain it simply, you
don't understand it well enough.

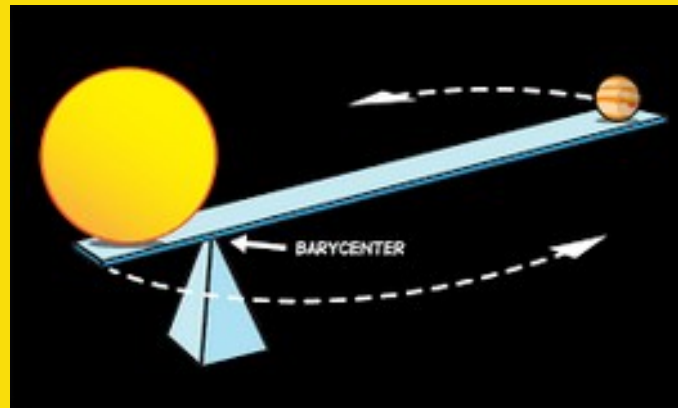
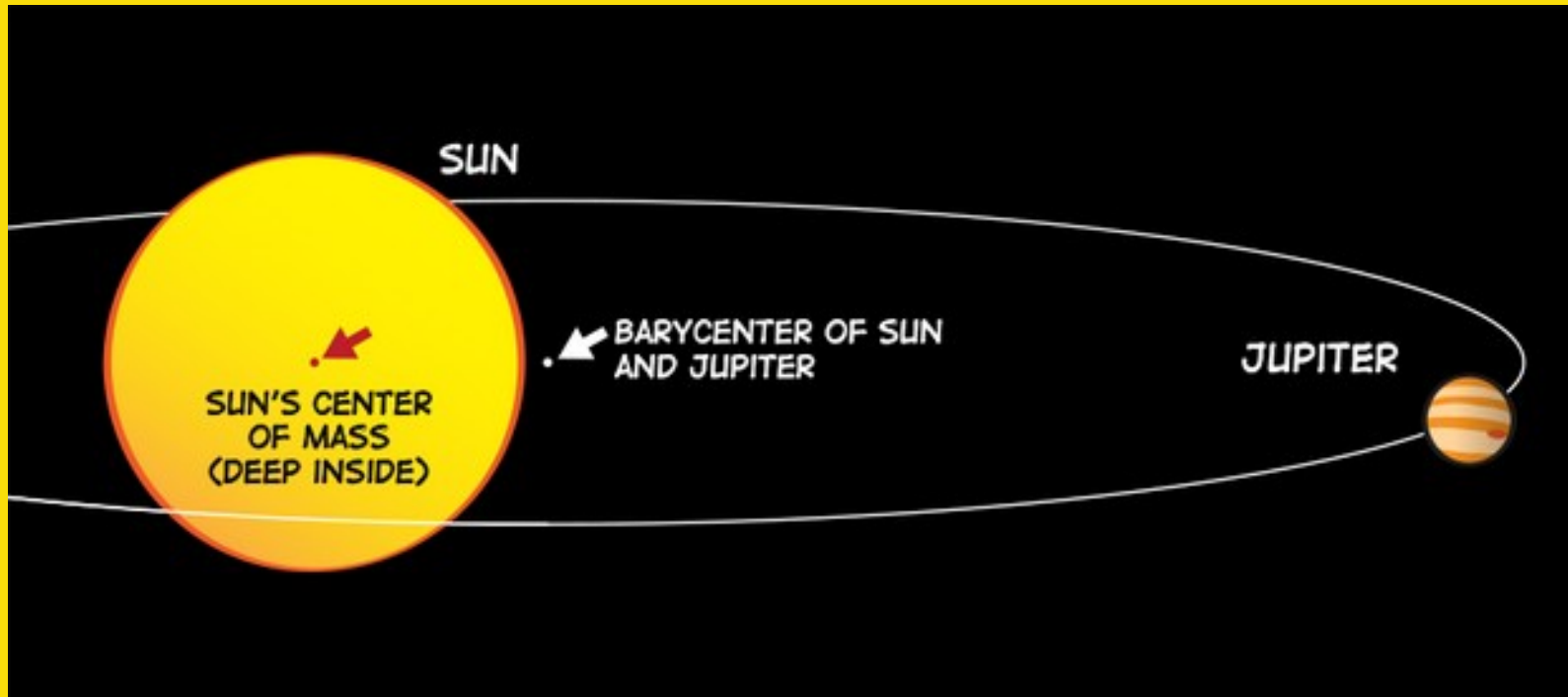
Albert Einstein

www.thequotes.in

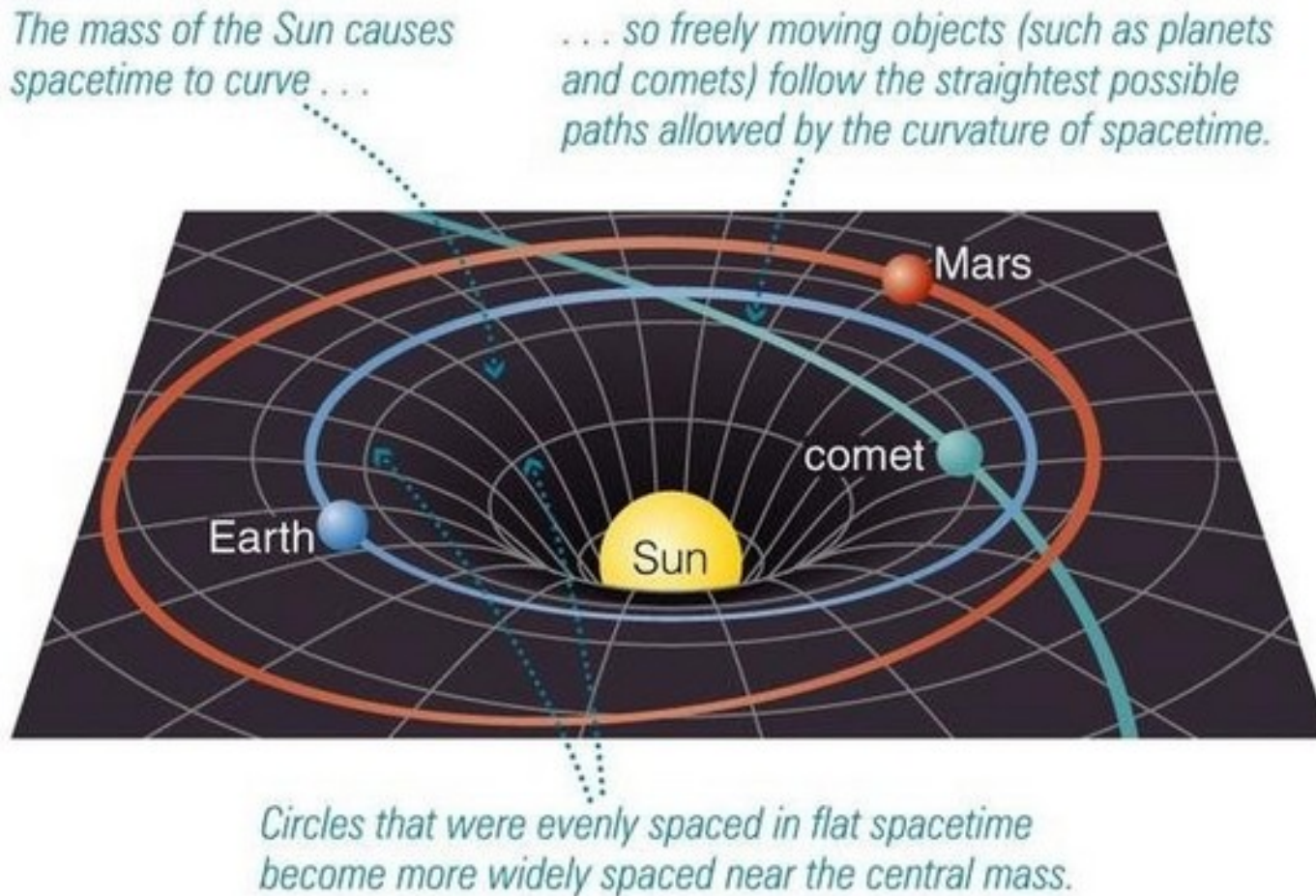
Accuracy an issue?



Accuracy an issue?



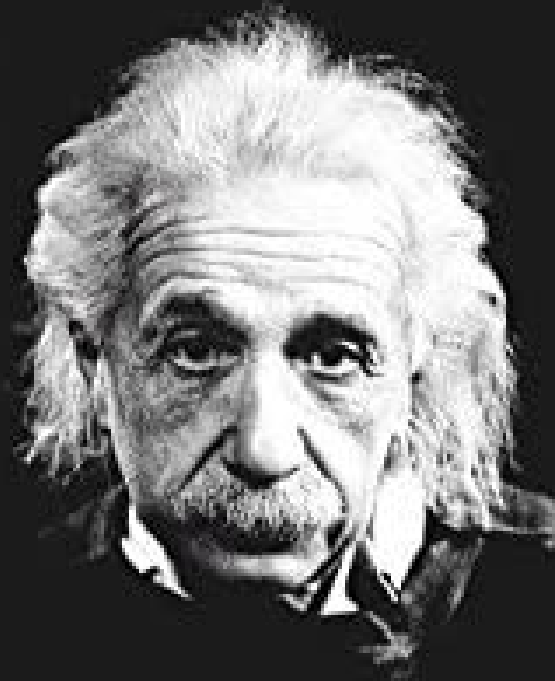
Accuracy an issue?



Accuracy an issue?

**“Everything should be made
as simple as possible,
but not simpler.”**

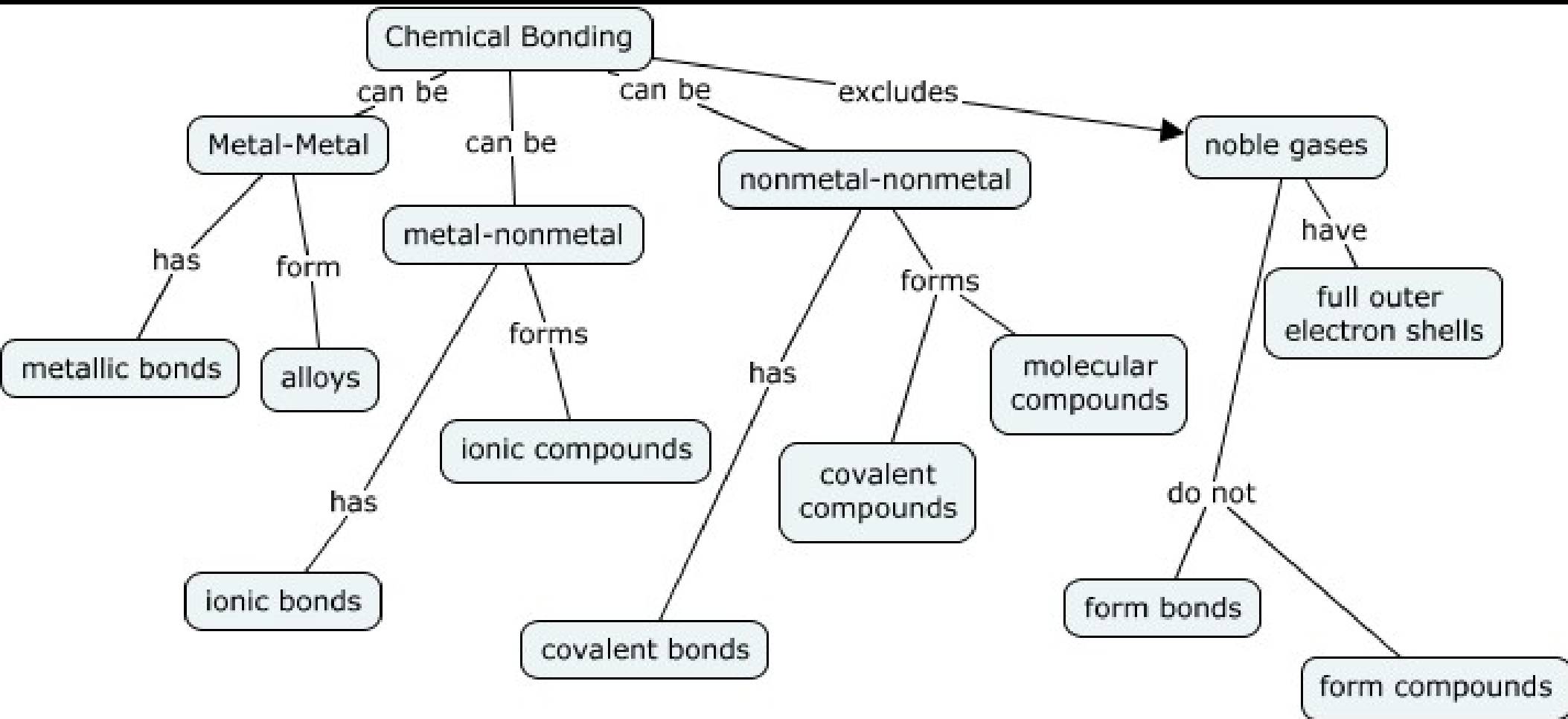
- Albert Einstein



World of Science

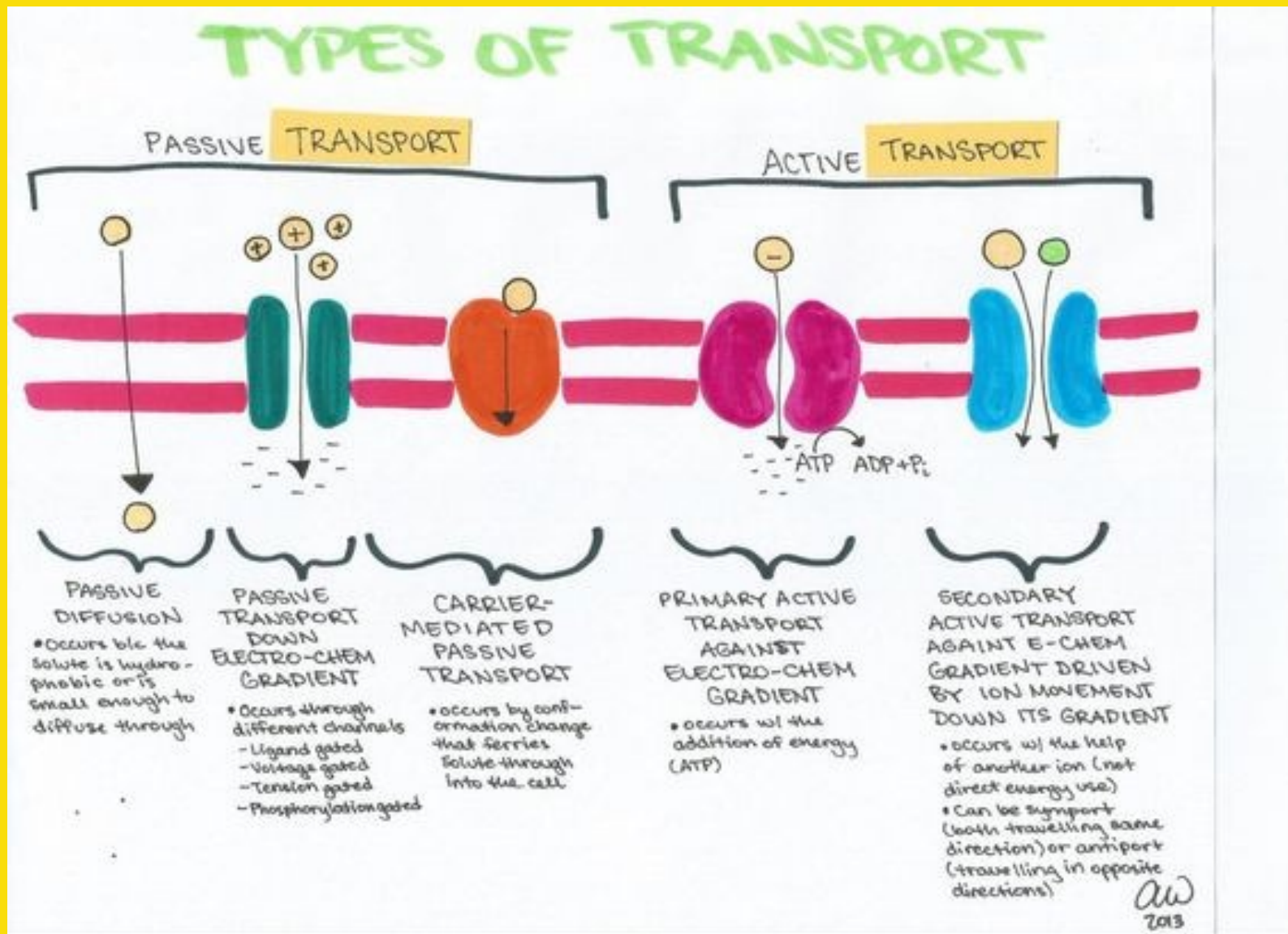
New reality domains
Counter intuitive
Abstract and concrete
Incongruous
Organized skepticism

New reality domains-Entities



New Entities

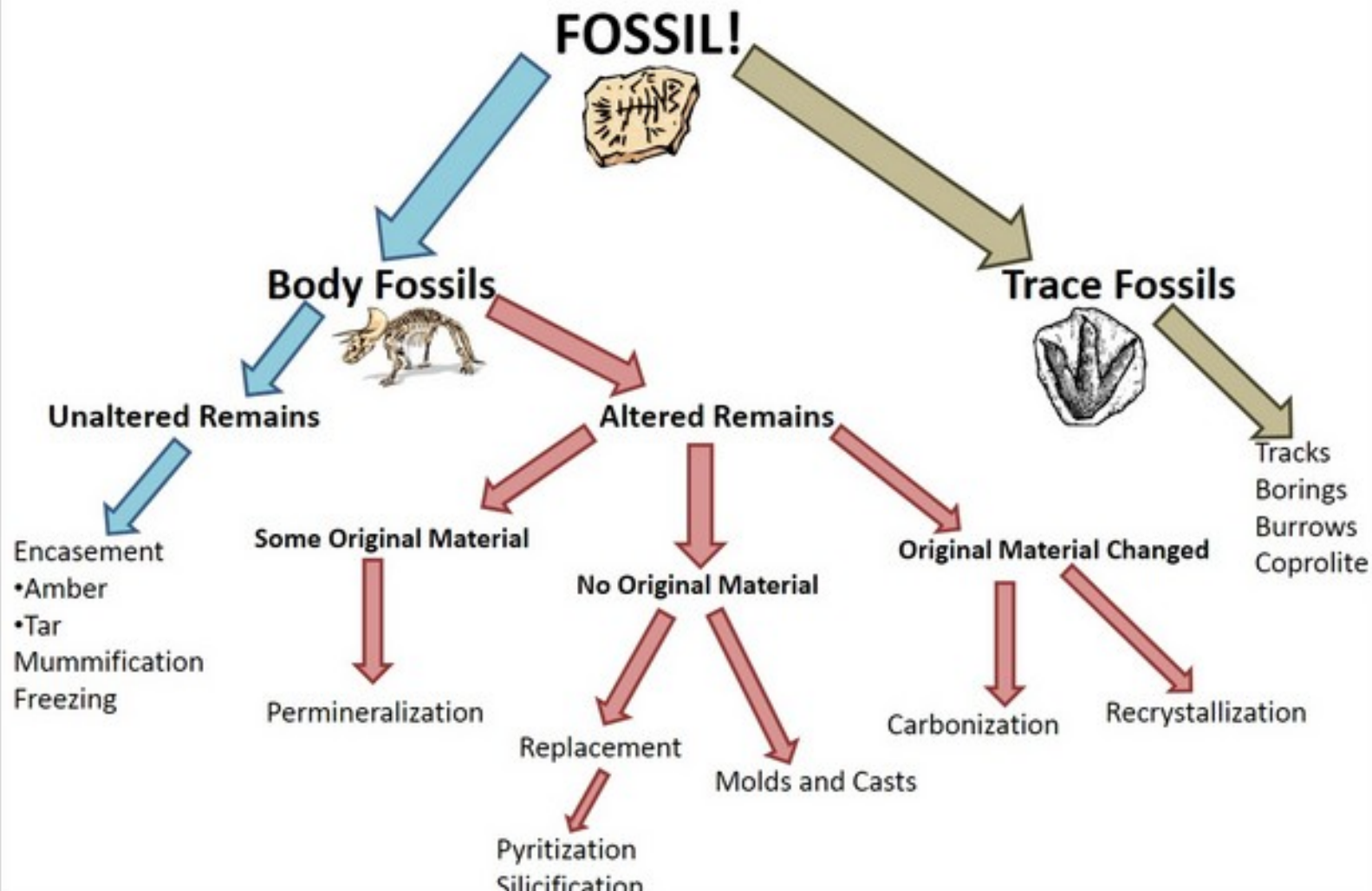
New reality domains- processes



New Processes

New reality domains- processes

The Fossilization Flow Chart



New reality domains- justification

New
Justification



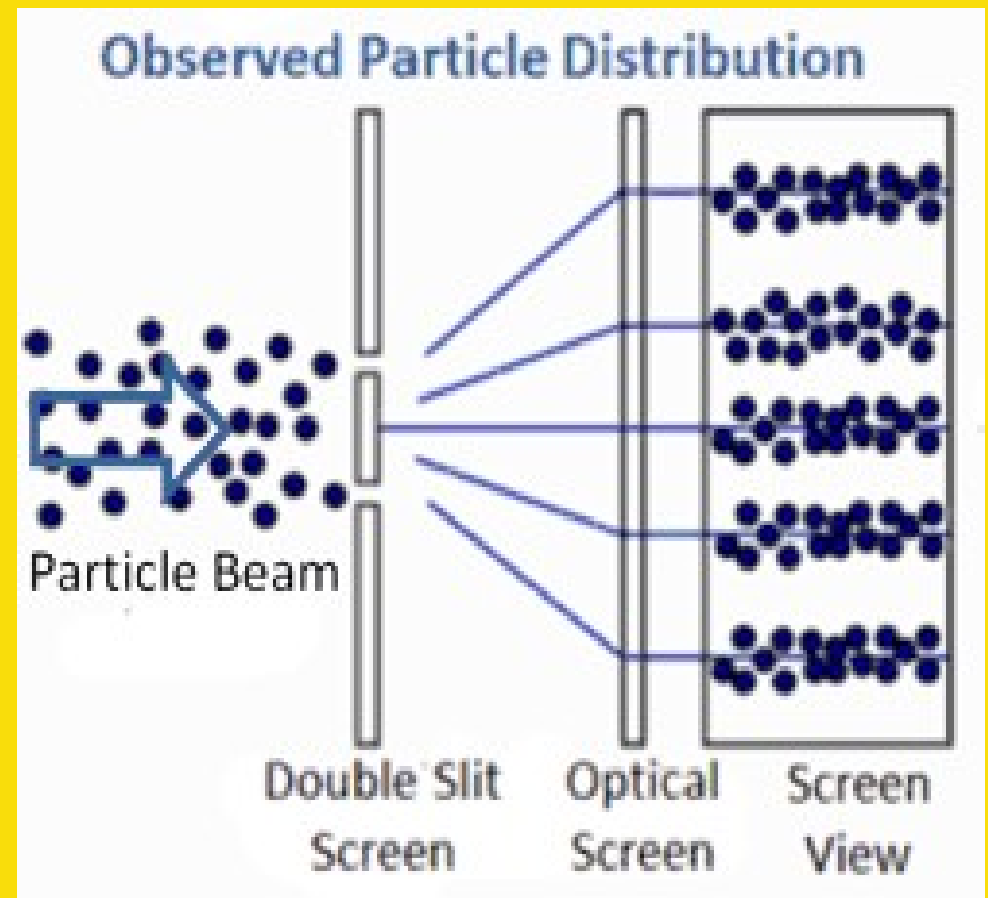
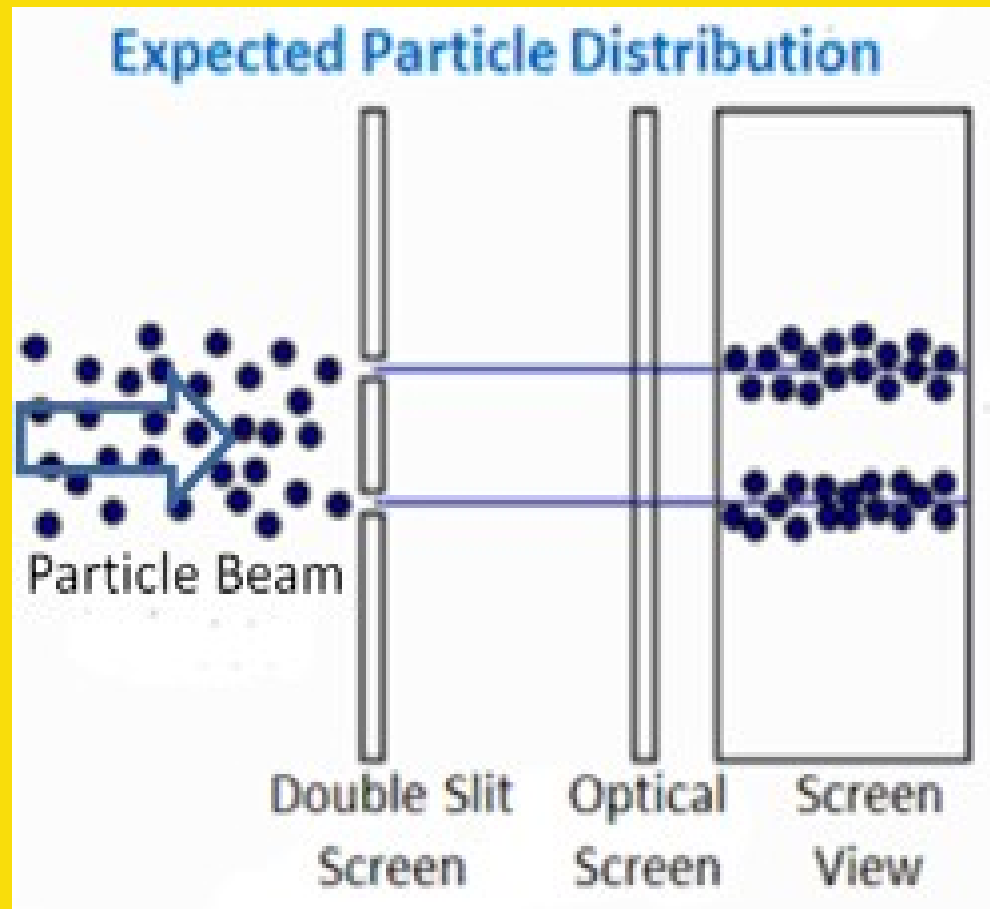
New reality domains

Entities- atoms, DNA, bonds..

Processes- Cell transport,
DNA code, petrification

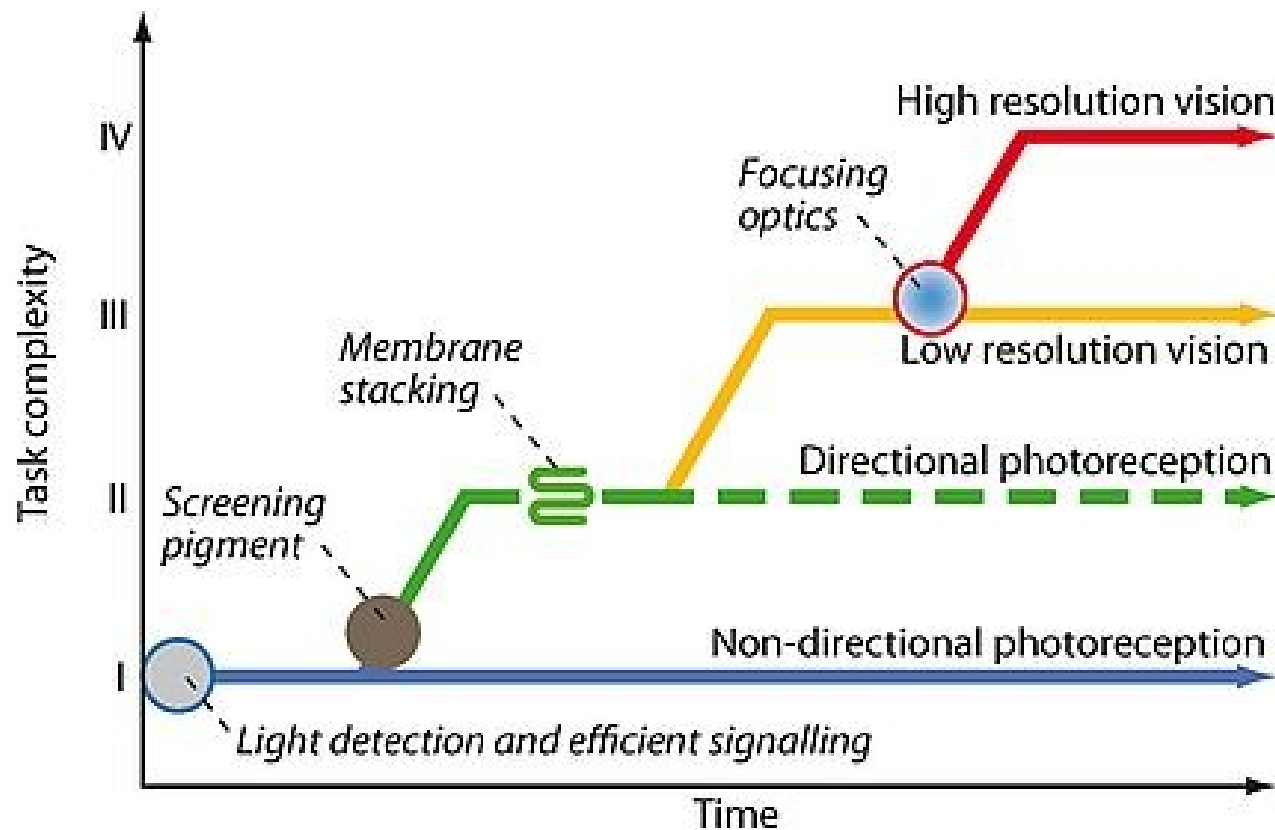
Justification- not of ball
moving, but stopping!

Counter Intuitive

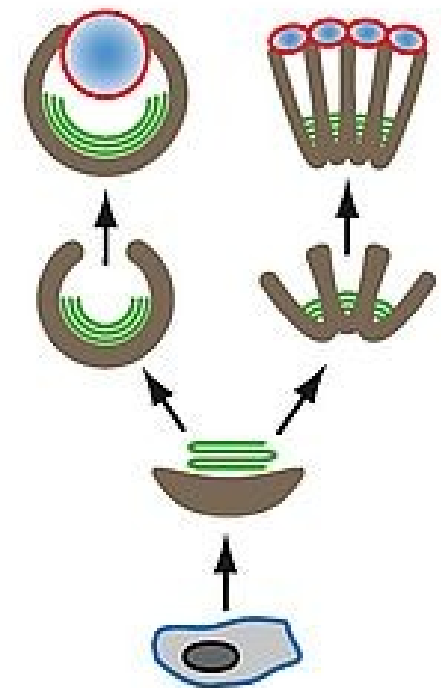


Counter Intuitive

Functional innovations and evolution of behavioural classes



Corresponding eye evolution



Abstract and Concrete

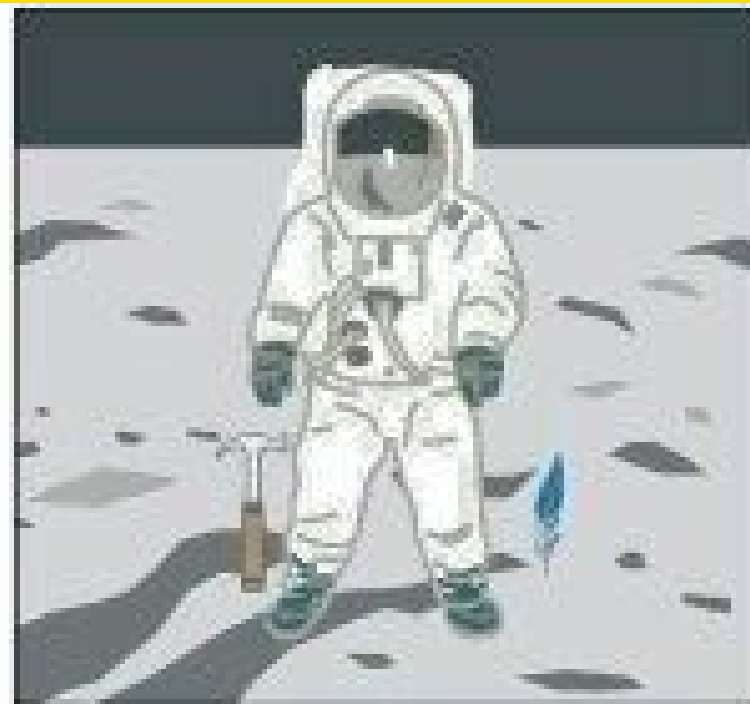
Experience is bisected
Explanation is combination



In air



In a vacuum



In a vacuum (the hard way)

Abstract and Concrete

Nature

Genes and Hereditary Factors
physical appearance
personality characteristics

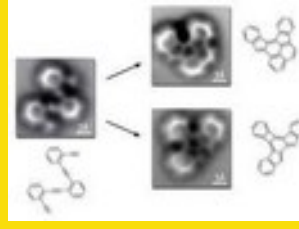


Nurture

Environmental Variables
childhood experiences
how we were raised
social relationships
surrounding culture



Incongruous



Einstein equations:

$$G_{\mu\nu} = 8\pi G T_{\mu\nu}$$

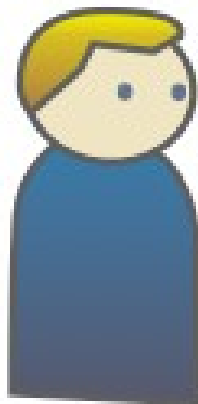
$G_{\mu\nu}$ Einstein tensor (describes curvature of spacetime)

$T_{\mu\nu}$ energy-momentum tensor (describes distribution of matter in the spacetime)

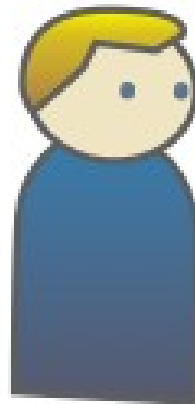
too abstract (physics)
too theoretical (mathematics),
too remote in time (prehistory)
place (cosmology),
too infinitesimal (molecular biology)
inaccessible (genetic therapy)

Organized scepticism

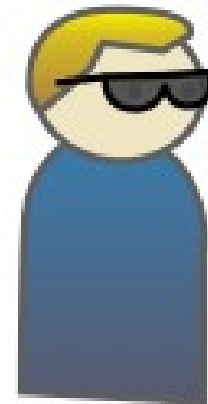
I guess you
could say
that I'm so
skeptical...



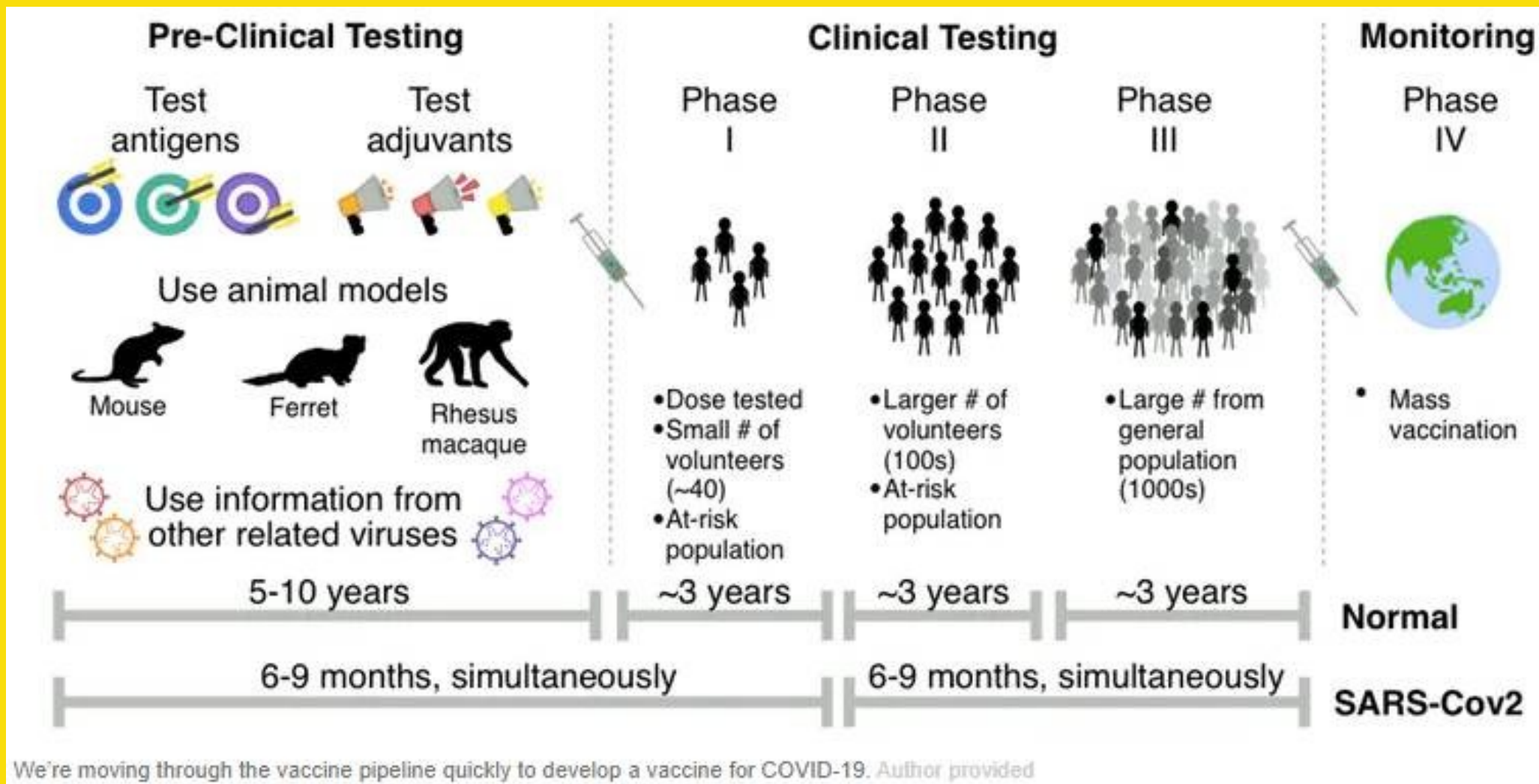
...that I'm even
skeptical
about being
SKEPTICAL...



...about
skepticism.



Organized scepticism



Three golden rules of science communication

From known to unknown

From simple to complex

From particular to general

Making unfamiliar, familiar

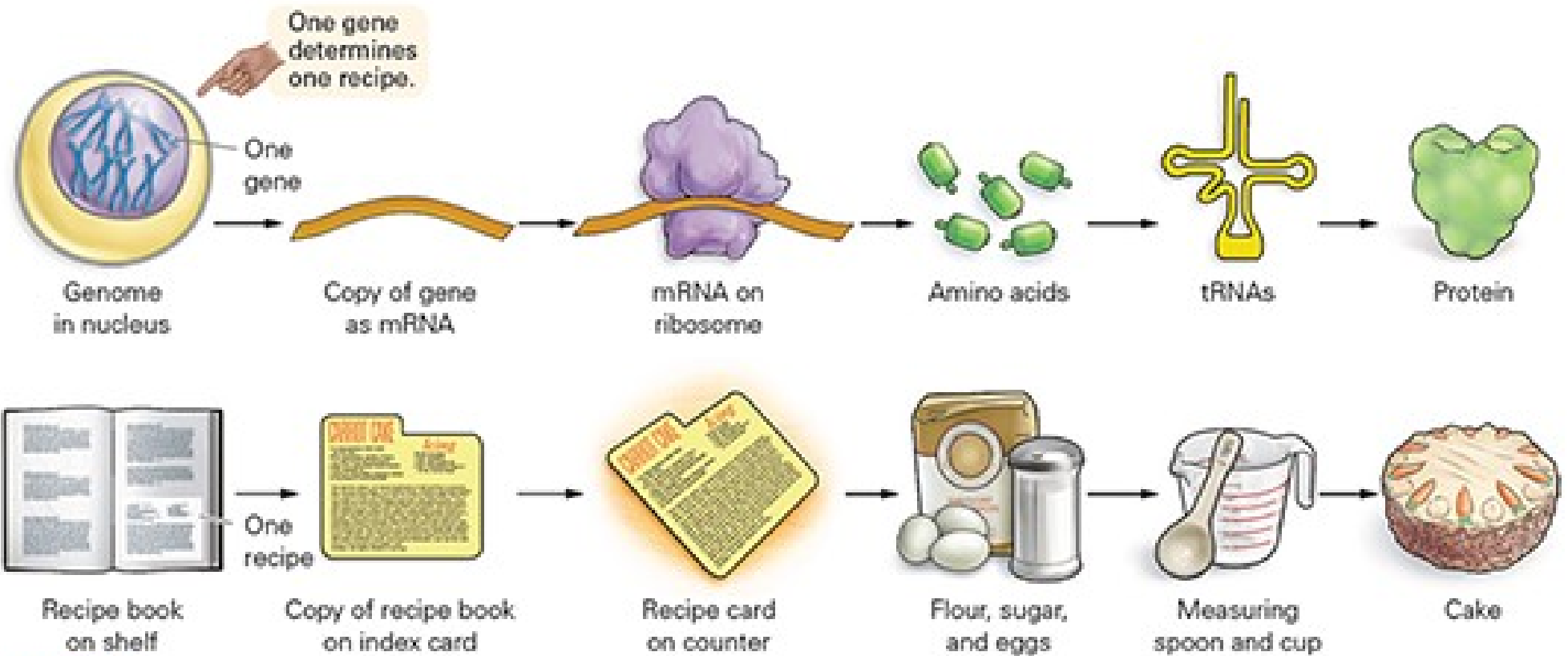
Analogy- Cook Book of life

Imagestic- Immune war

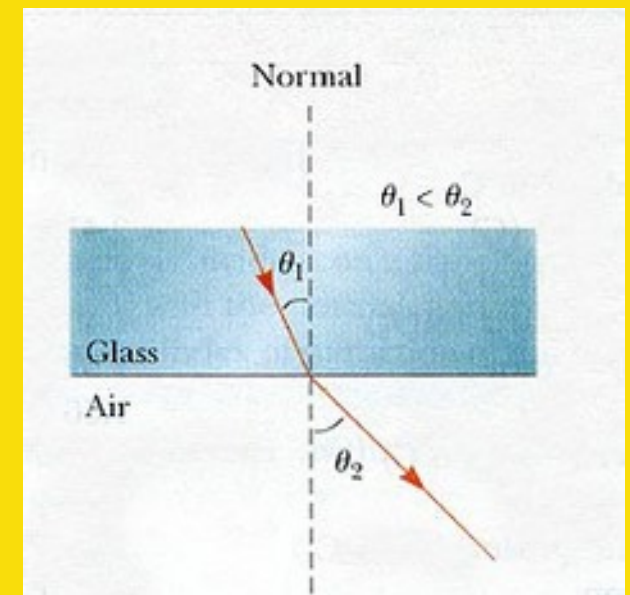
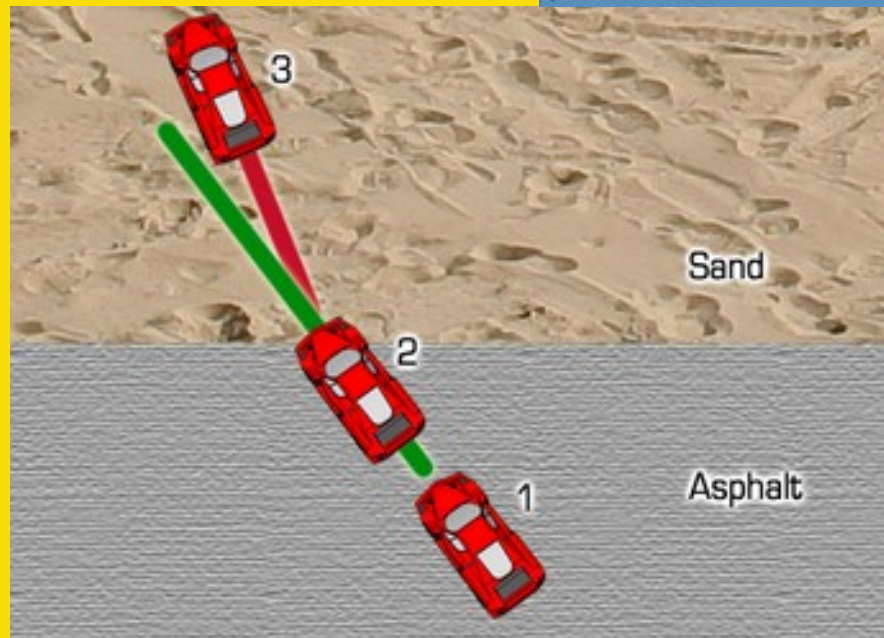
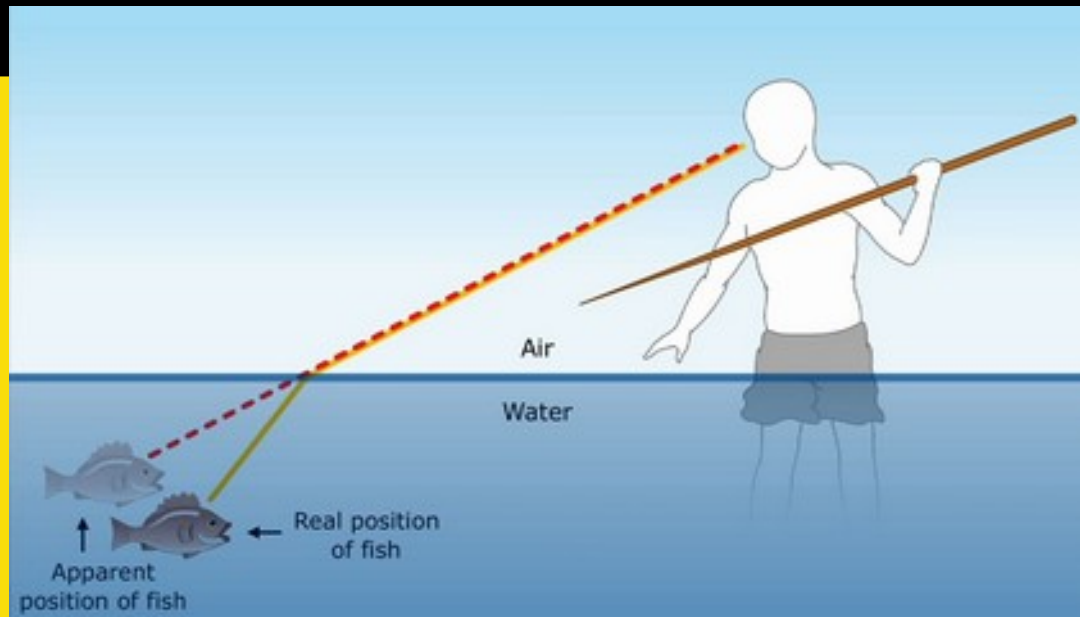
Illustrations/Examples-Distance of
Stars

Thought experiments -Hilbert hotel

Analogy

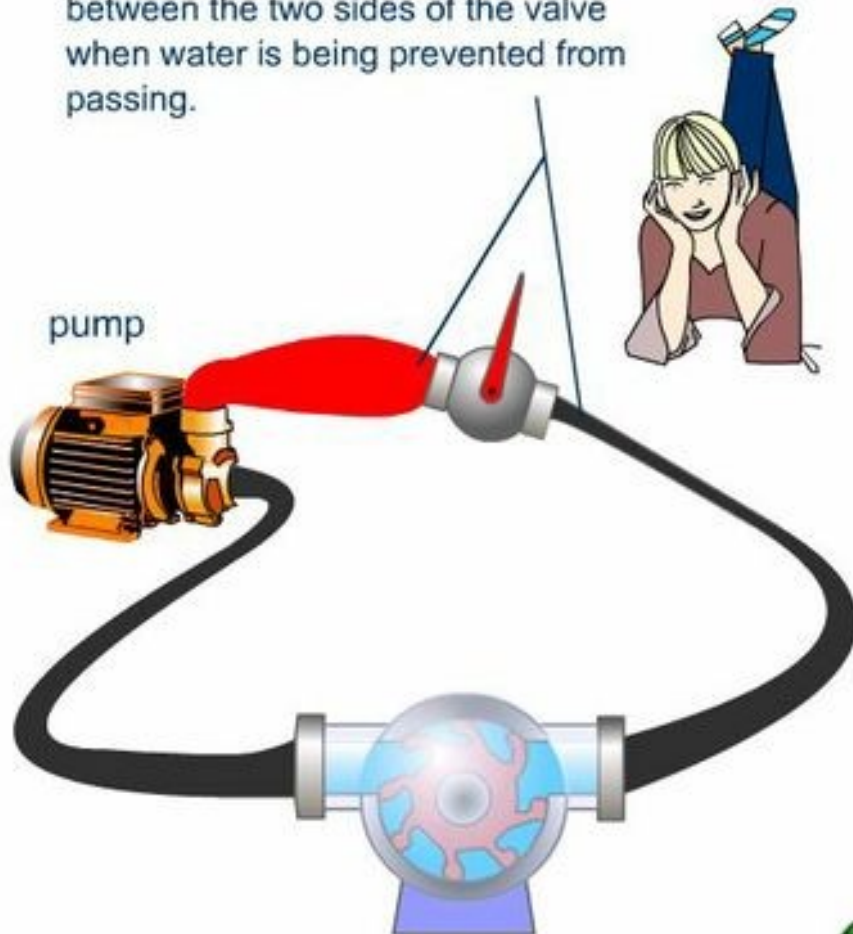


Analogy

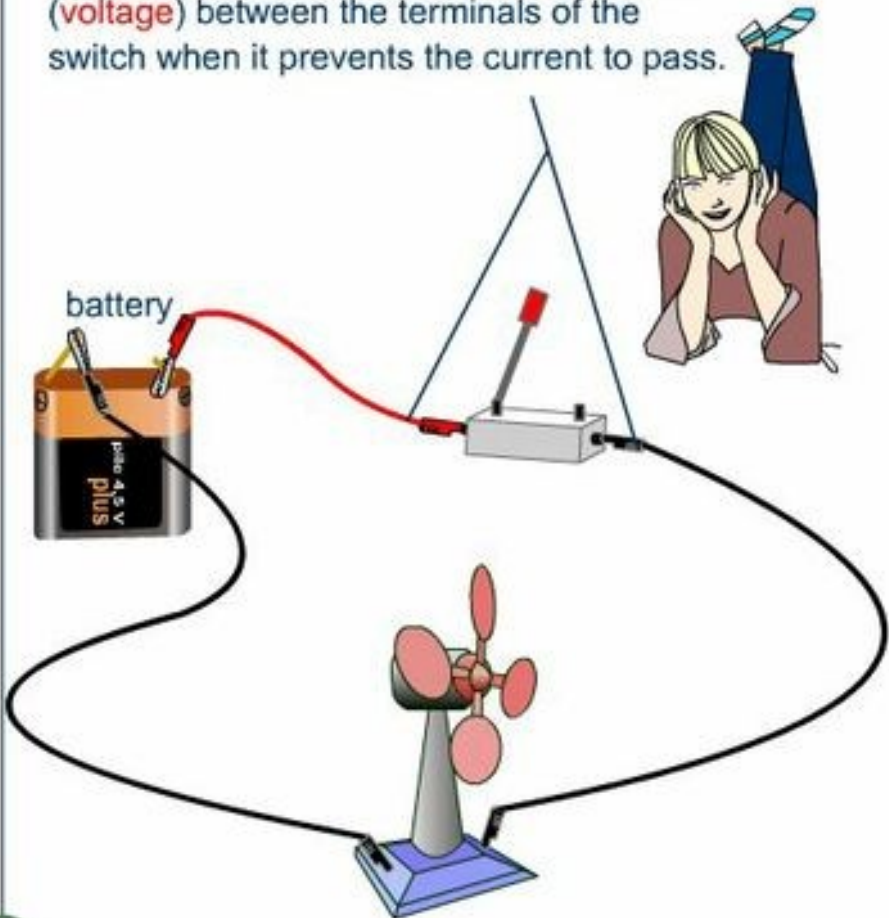


Analogy

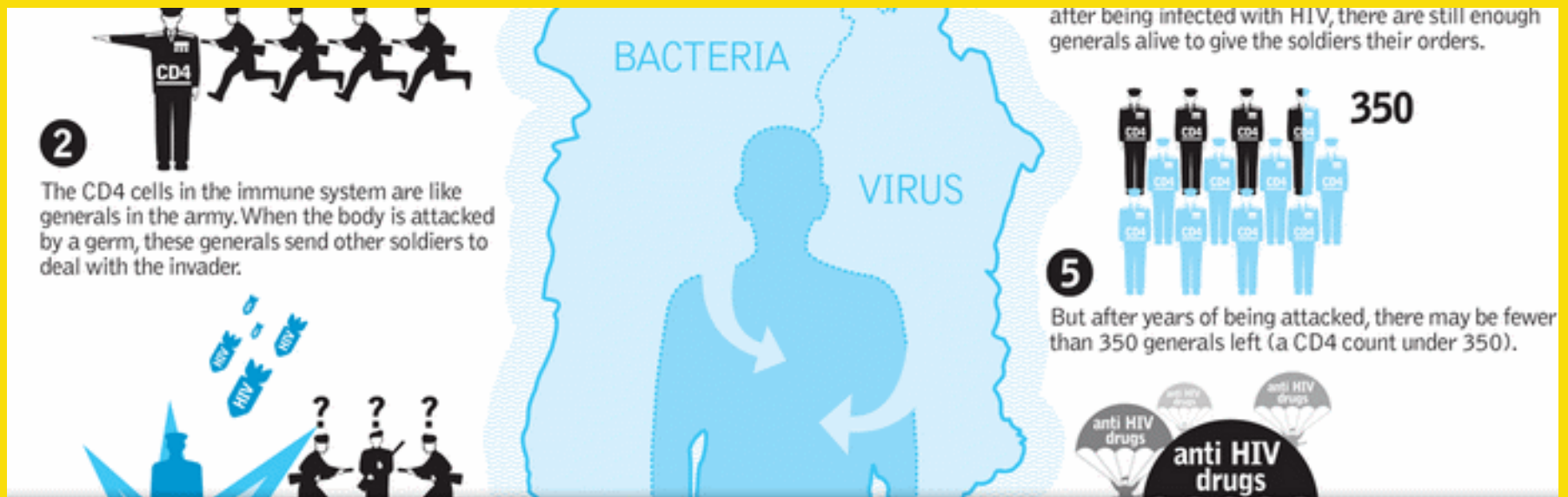
There is a difference in pressure between the two sides of the valve when water is being prevented from passing.



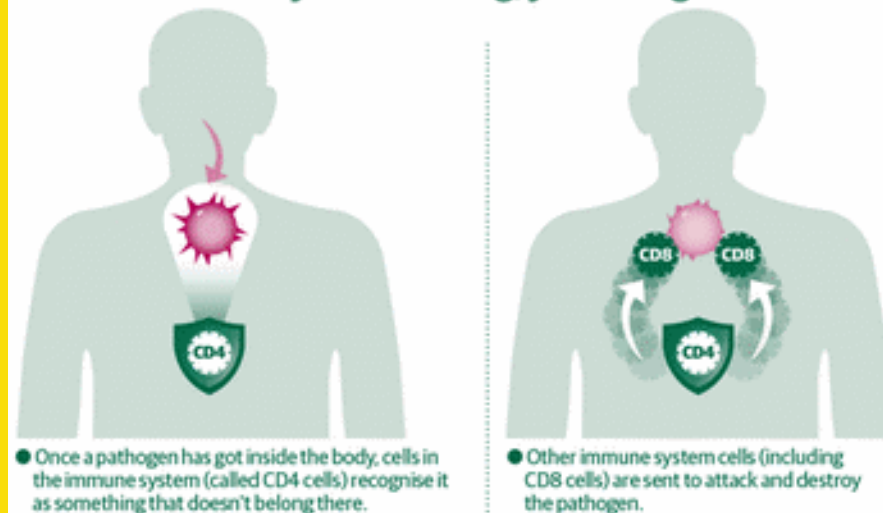
There is a difference in the electrical state (**voltage**) between the terminals of the switch when it prevents the current to pass.



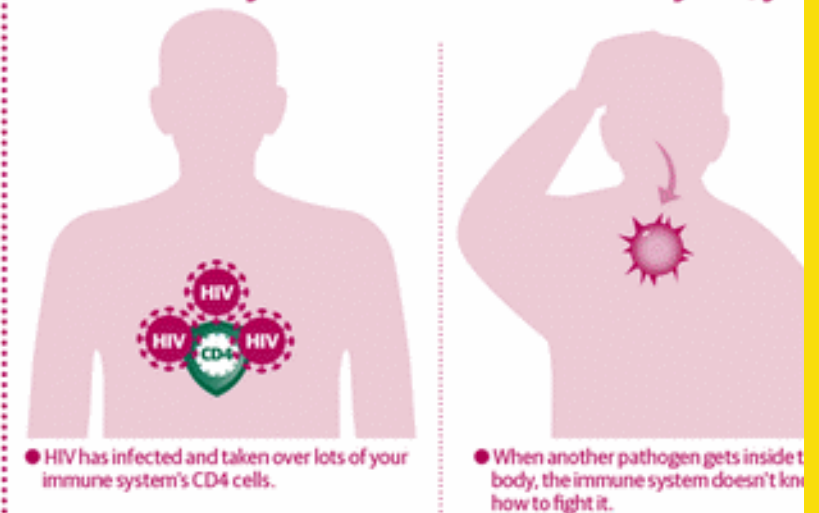
Imagestic



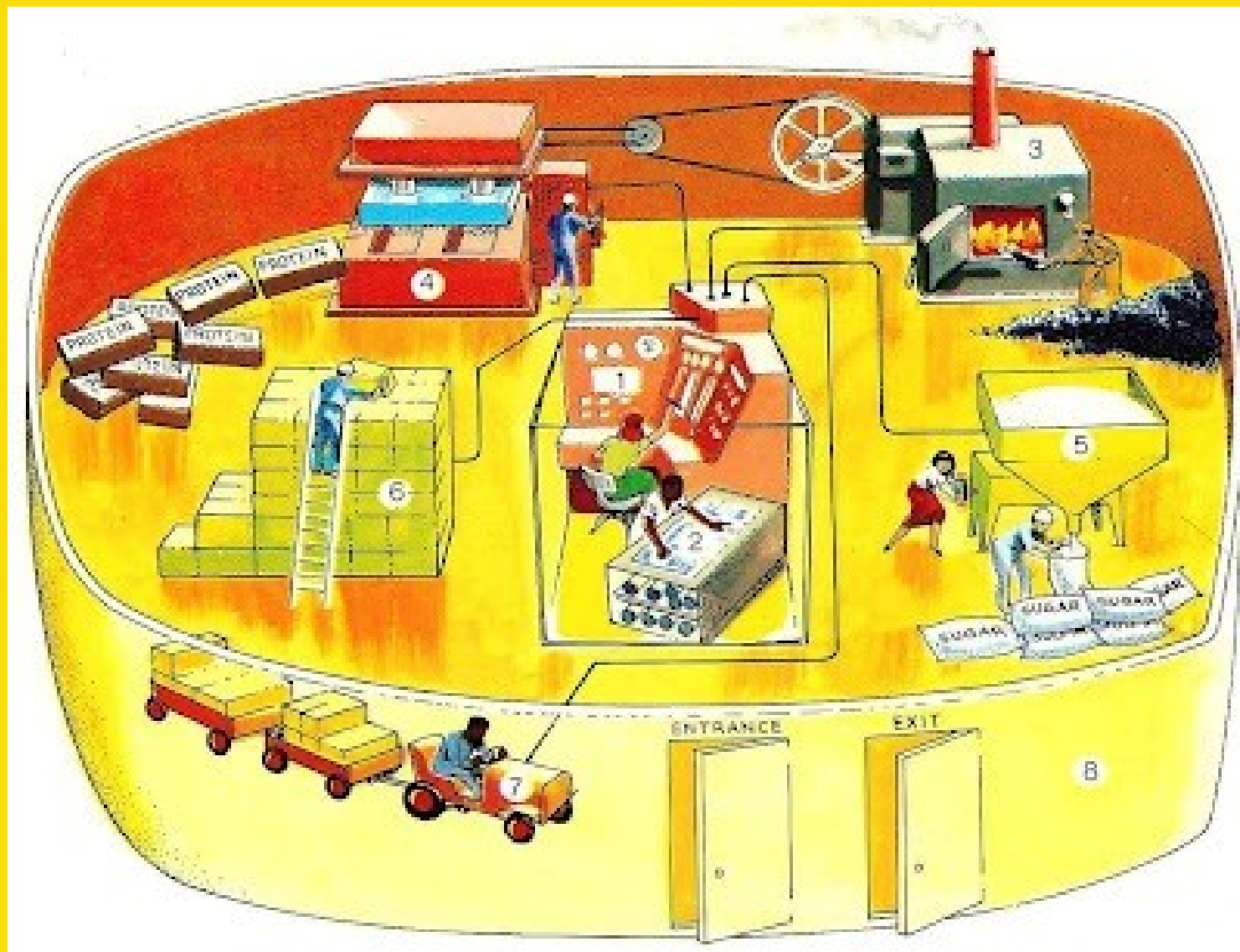
When the immune system is strong, you don't get ill



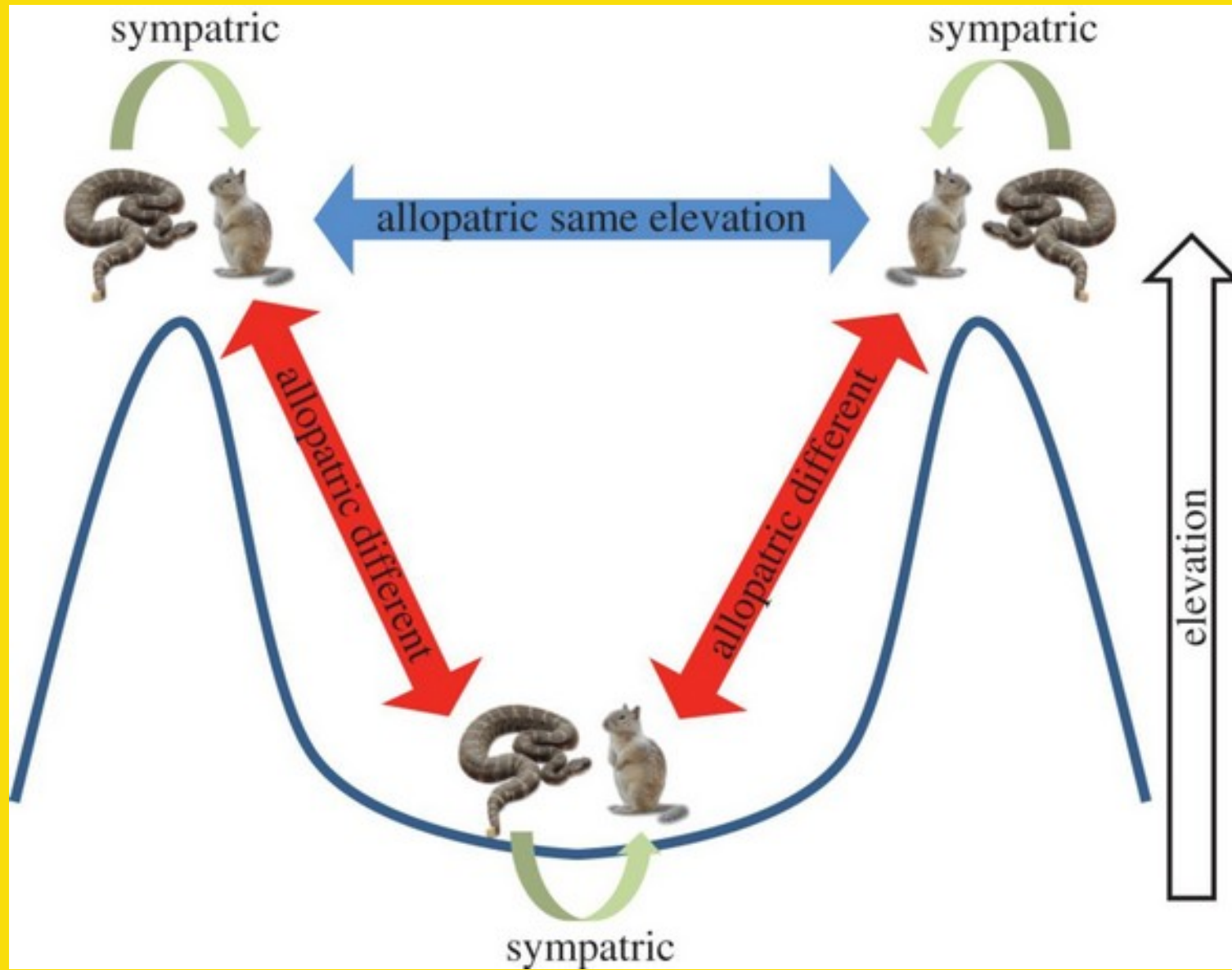
If the immune system has been made weak by HIV, you



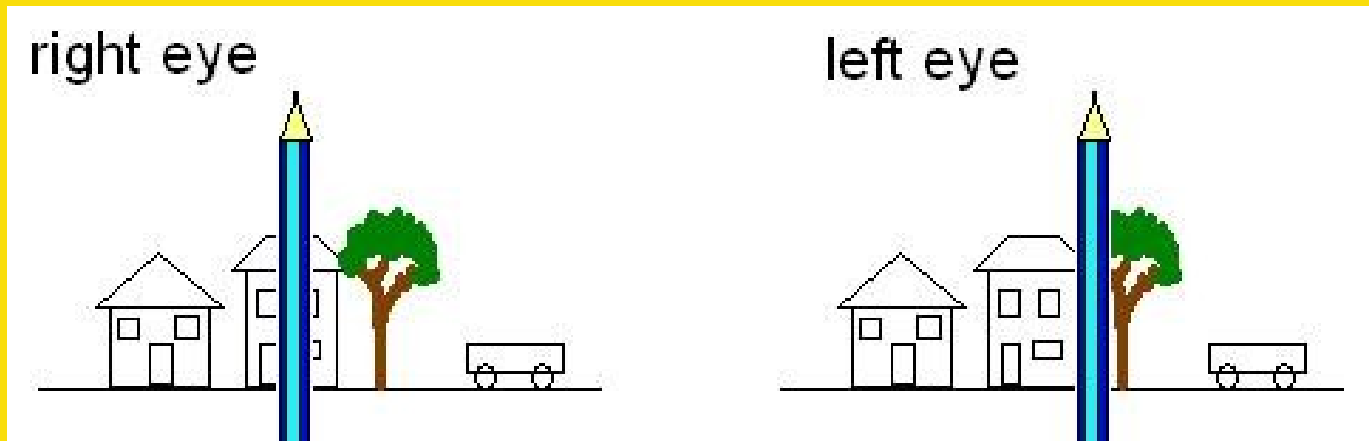
Imagestic



Imagestic

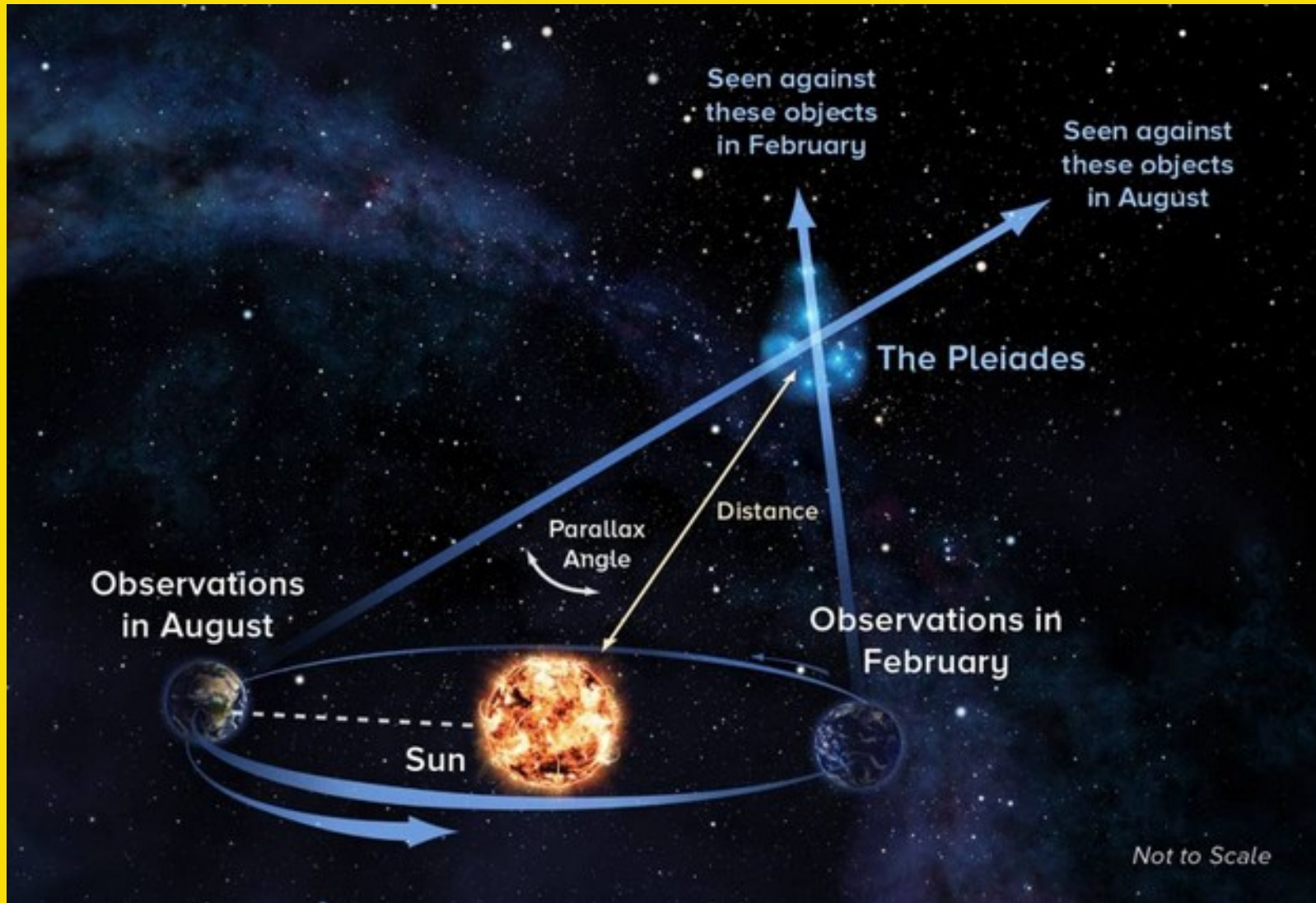


Real world example

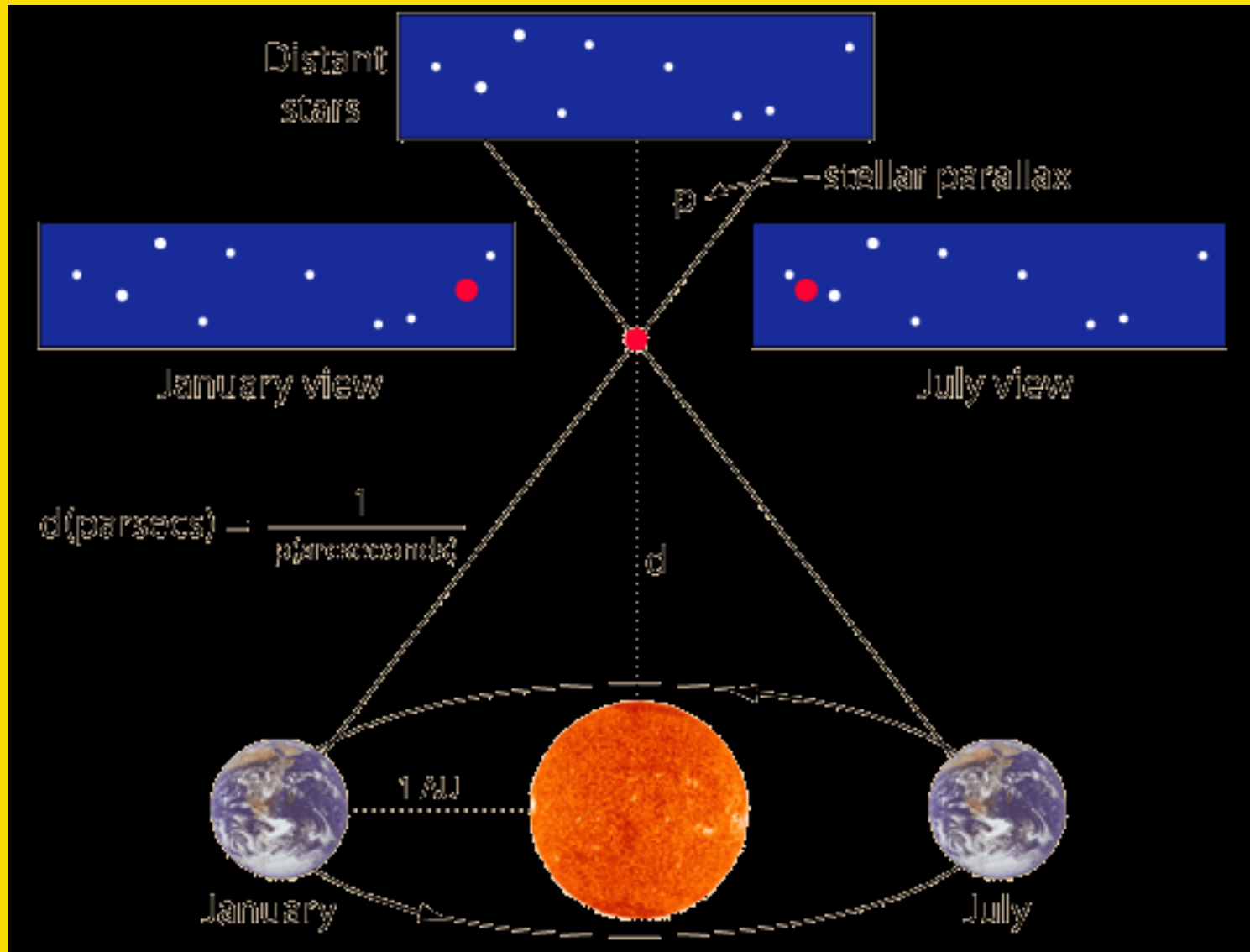


The parallax method used to determine the distance of nearby stellar objects is elucidated with binocular vision.

Real world example



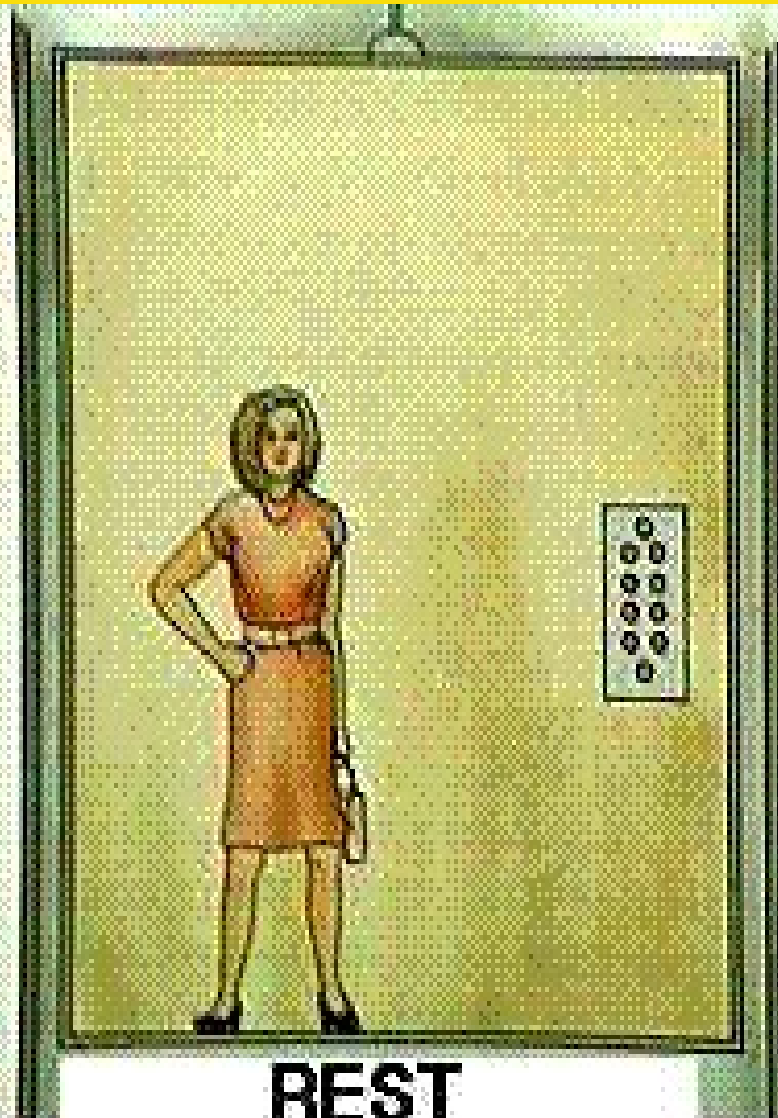
Real world example



Real world example



Thought experiments



Thought experiments

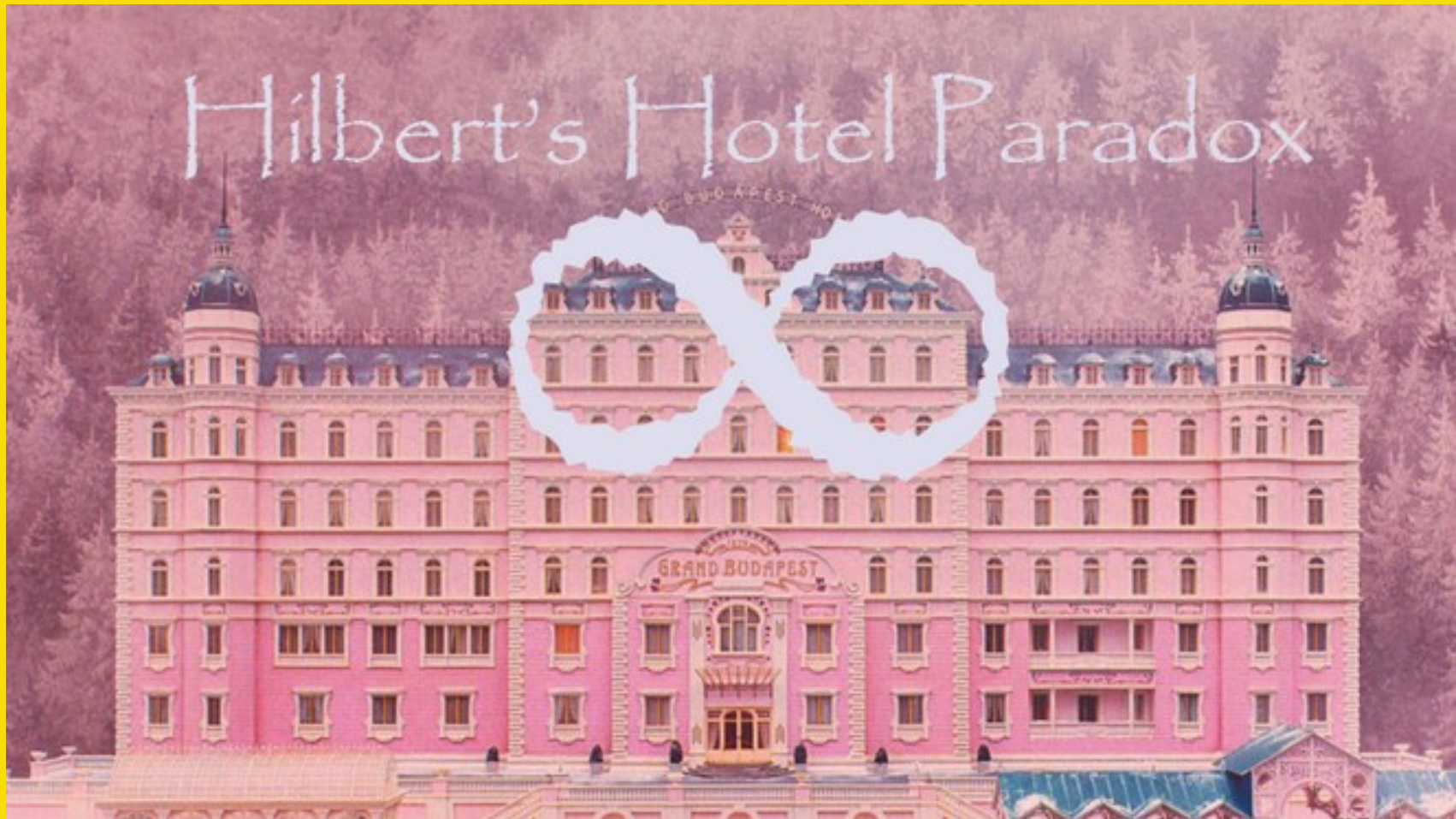


Space-station is falling towards the Earth!!!!

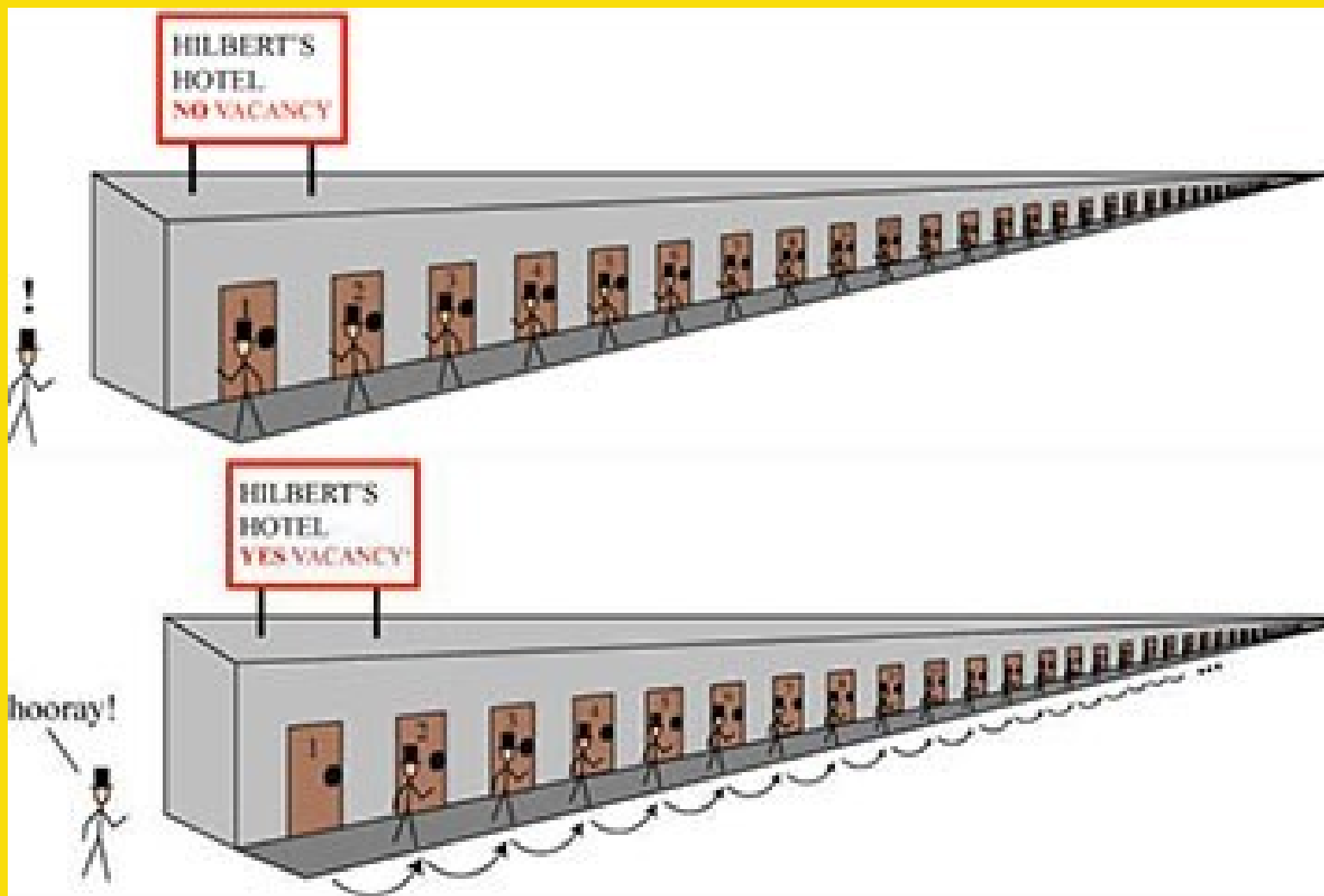


That is why they are floating!!!

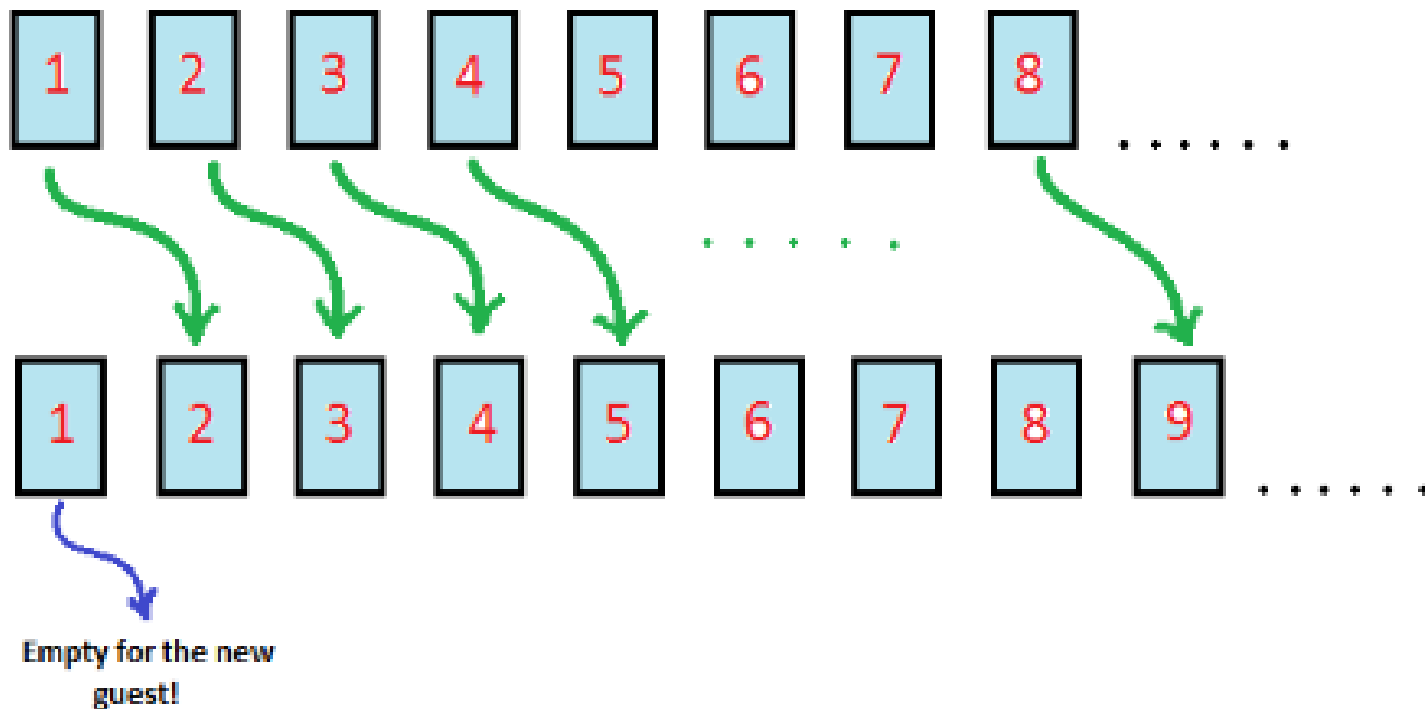
Thought experiments



Thought experiments



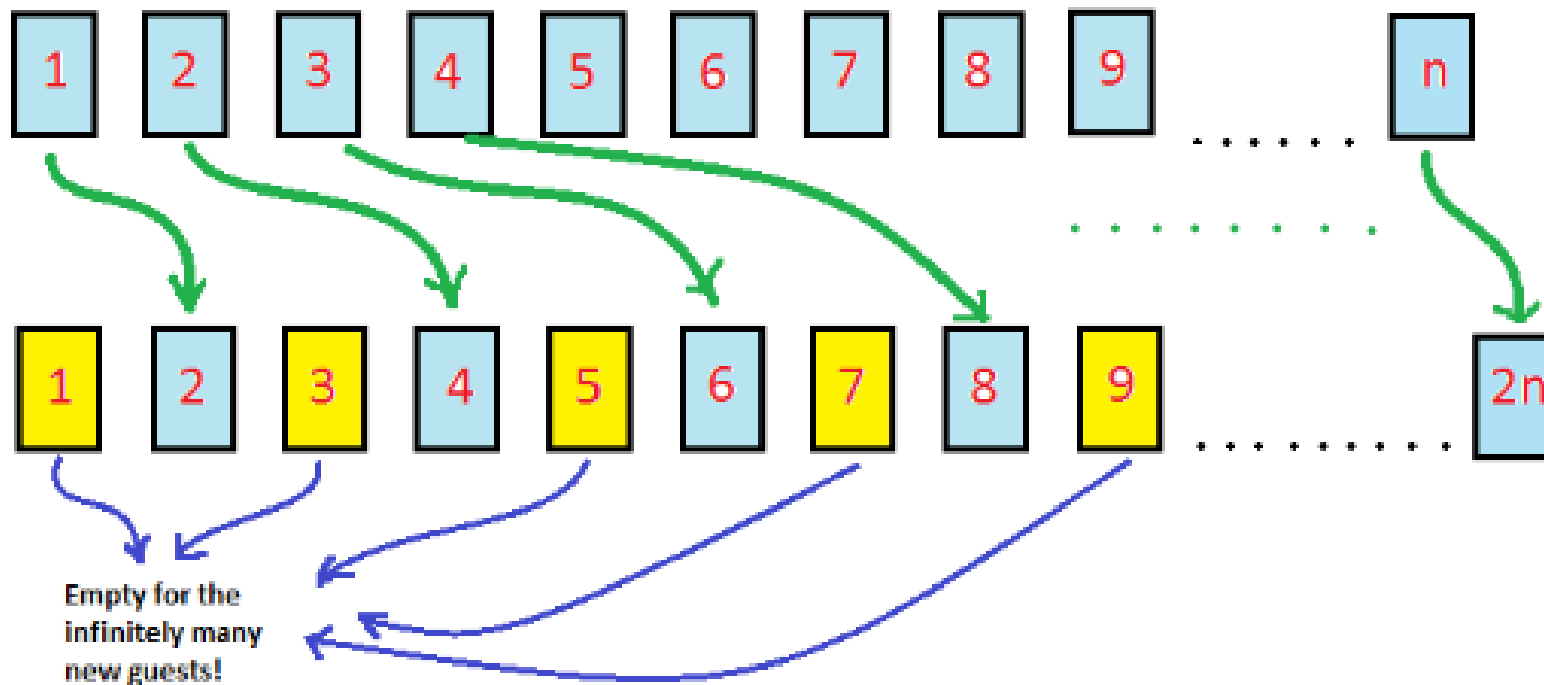
Thought experiments



Thought experiments



Thought experiments



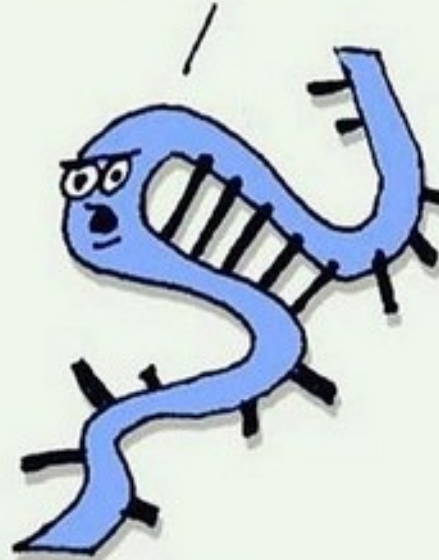
Humour is permitted

STILL SINGLE?



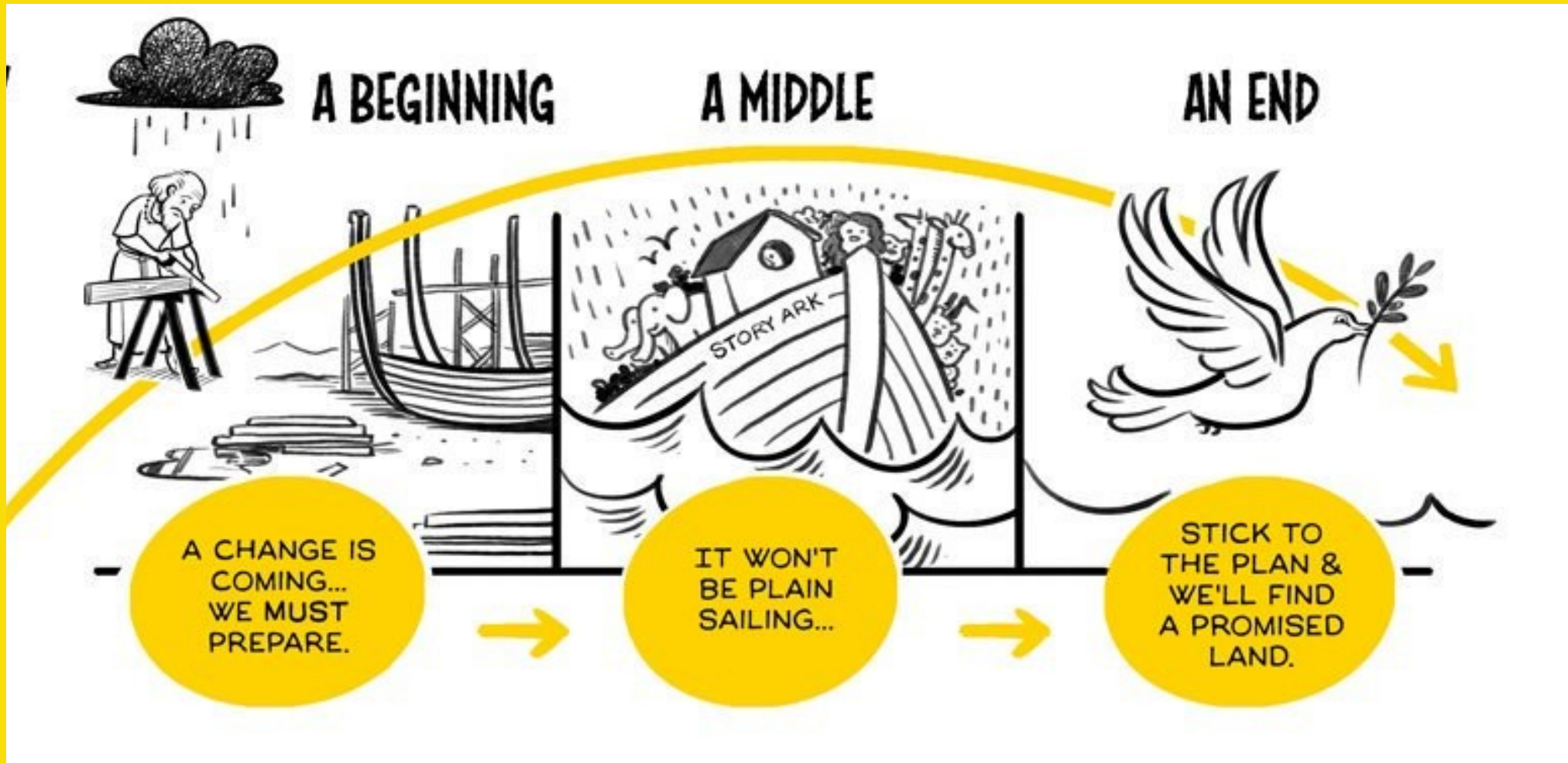
DNA

ALWAYS.



RNA

Three act strcuture



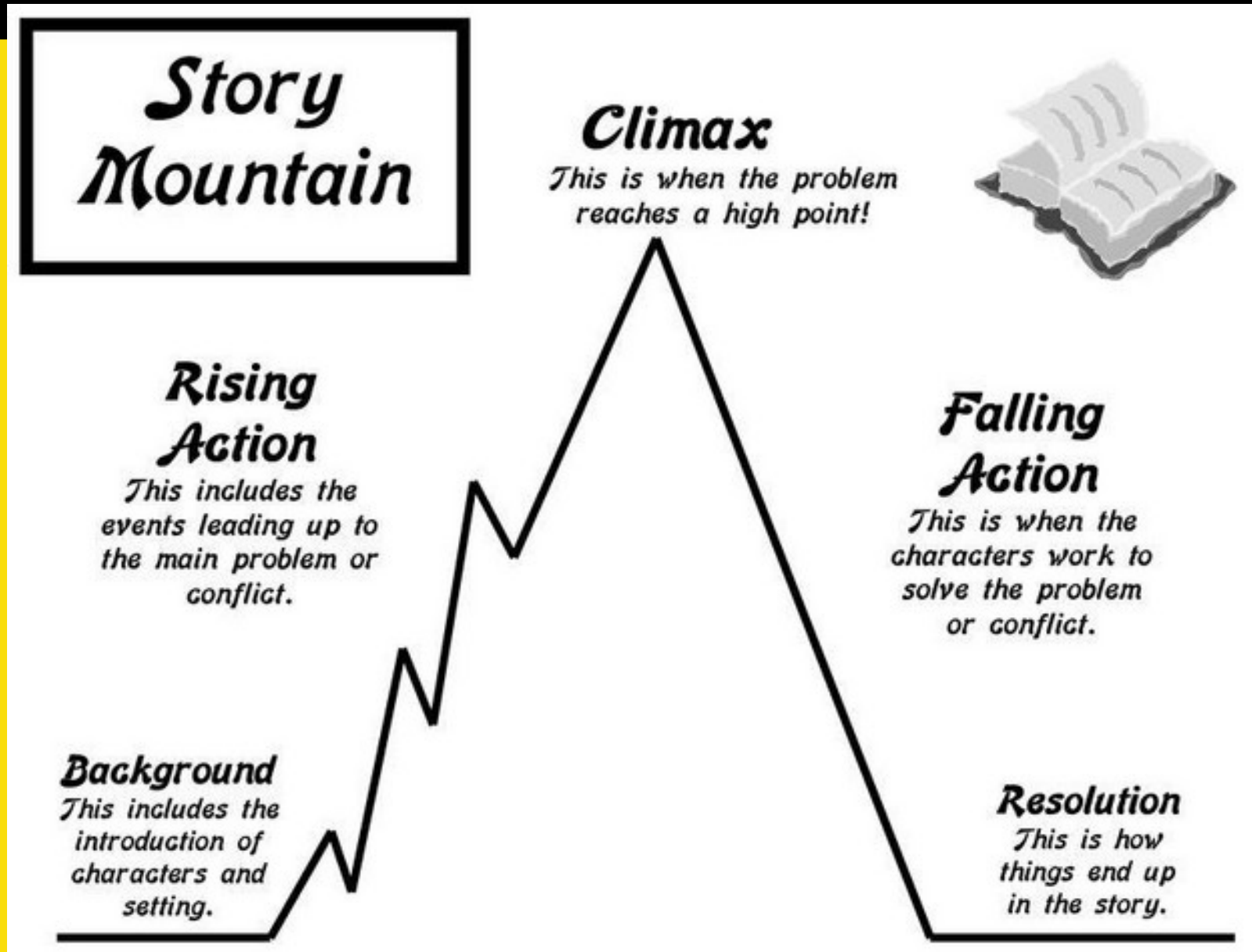
Three act structure



Spectacle



Story!



Mission

STORY/ SPECTACLE
with a difference!

- 1. “bulb in the head”- that is not just emotion but tickling the brain**
- 2. known to unknown**
- 3. simple but not simpler**